

Essential Skills 22

The skills in this series of worksheets appear frequently.

These are the GIFTS you must take to succeed

Further Differentiation



Find the derivative of each, leaving your answers as positive indices:

1. $y = (x + 5)^4$

2. $f(x) = (2x - 1)^3$

3. $f(x) = (3x + 2)^3$

4. $y = (4x - 1)^{\frac{5}{4}}$

5. $f(x) = \frac{3}{(x+1)^3}$

6. $y = \sqrt{2x - 1}$

7. $y = (2x^2 + x)^3$

8. $f(x) = \sin 4x$

9. $y = -\cos\left(2x - \frac{\pi}{3}\right)$

10. $y = 2\cos^3 x$

APPLYING QUESTIONS



1. If $f(x) = 2\sin^2 x$, show that $f'(x) = 2\sin 2x$ and hence calculate $f'\left(\frac{\pi}{3}\right)$.

2. A curve has equation $y = \frac{5}{4x+1}$, where $x \neq -\frac{1}{4}$

Find the equation of the tangent to this curve at the point where $x = 1$.